Energy Information Administration
Official Energy Statistics from the U.S. Government

Energy in Brief — What everyone should know about energy

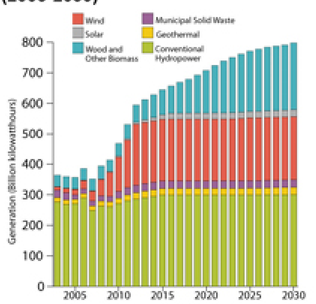
Last Updated: November 20, 2009

What are renewable portfolio standards (RPS) and how do they affect generation of electricity from renewable sources?

Renewable portfolio standards are policies designed to increase electricity generation from renewable resources, including wind, solar, geothermal, and biomass. Many States have their own renewable portfolio standards, although currently there is no program at the National level. States with renewable portfolio programs have seen an increase in the amount of electricity generated from renewable fuels.

Biomass (including wood) and wind are the two renewable fuels expected to show the most growth in the future, partly as a result of RPS programs.

Total Projected Renewable Electricity Generation, Including Additions from Existing State-level Programs, (2003-2030)

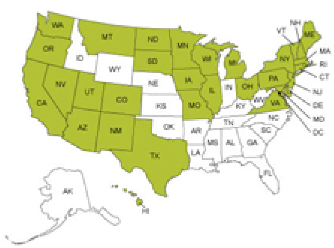


Source: Energy Information Administration, Updated *Annual Energy Outlook 2009*, Reference Case.

Data for this figure

See larger graph on next page

States with Renewable Portfolio Standards



Source: U.S. Department of Energy, Energy Efficiency and Renewable Energy, November 2009.

See larger map on last page

A State RPS Example

In 2006, Washington State voters approved an RPS requiring certain electricity suppliers to generate 3% of their electricity from eligible renewable sources by 2012, with the requirement growing to 15% by 2020. These mandated levels of generation apply to utilities that

Did You Know?

As of May 2009, 29 States and the District of Columbia have RPS policies to encourage the generation of renewable electricity in different ways.

What Are Renewable Portfolio Standards?

Renewable portfolio standards (RPS), also referred to as renewable electricity standards (RES), are policies designed to increase generation of electricity from renewable resources. These policies, which may be mandatory or voluntary, function by requiring or encouraging electricity producers within a given jurisdiction to supply a certain minimum share of their generation from designated renewable resources. Generally, these resources include wind, solar, geothermal, biomass, and some types of hydroelectricity, but may include other resources such as landfill gas, municipal solid waste, ocean thermal, and tidal energy.

How Have RPS Programs Been Implemented?

Although several RPS proposals have advanced part way through the Congress in recent years, none has been enacted into law, so there is currently no RPS program in place at the National level. However, many States have enacted their own RPS programs. These programs vary widely by State in terms of program structure, enforcement mechanisms, size and application; a large range of policies are considered to be under the RPS umbrella. In general, an RPS must specify which renewable energy resources are eligible to satisfy the generation requirement. Often, the selected eligible resources are tailored to best fit the State's particular resource base. Some States also set electricity generation targets for specific types of renewable energy to encourage use of that renewable resource.

Another important feature of some State policies, as well as most proposed Federal policies, is a renewable electricity credit (REC) trading system. This mechanism allows an electricity producer who generates renewable electricity to either trade or sell certificates of generation to other electricity suppliers who do not generate enough RPS-eligible renewable electricity to meet their RPS requirement.

This REC trading system is designed to minimize the overall cost of compliance with the RPS. Here's how it works: in regions with few or expensive renewable resources, electricity suppliers can comply with generation mandates at a lower cost by purchasing RECs rather than being required to use only local resources or to invest in their own renewable generation facilities. The flexibility provided by the REC's trading mechanism is helpful in limiting costs because diverse sources of renewable energy are spread throughout the United States.

Does an RPS Program Increase Levels of Electricity Generated from Eligible Renewable Resources?

In general, States with RPS policies have seen an increase in the amount of electricity generated from eligible renewable resources. However, some States without RPS policies have also seen significant increases in renewable generation over the past few years resulting from a combination of Federal incentives, State programs, and market conditions. Perhaps the most important of these Federal incentives has been the production tax credit, which awards tax credits to entities that generate electricity using renewable technologies that are eligible for the program. Increases in renewable generation have often been most significant when both an RPS mandate was in effect and a production tax credit was available to electricity producers.[1]

What Impacts Might a Federal RPS Standard Have on Renewable Electricity Generation?

The U.S. Energy Information Administration (EIA) has examined several proposed Federal RPS standards. One proposal, analyzed in 2007, called for 15% of U.S. electricity sales by 2020 to be generated by eligible renewable resources.[2] This proposal included a REC trading program that allowed electricity suppliers to choose between generating renewable electricity and purchasing RECs toward compliance. It also awarded triple credits for electricity produced from distributed resources — that is, produced at a non-central generating station, such as from a roof-top solar photovoltaic (PV) system.

Compared to projections without these proposed standards, EIA's analysis showed a tripling of electricity generated from biomass as well as large increases in wind and solar photovoltaic generation by 2030. According to EIA projections, this increase in renewable generation would primarily displace coal generation but also some nuclear and natural gas generation. Retail electricity prices were predicted to rise by an average 0.9% above the price level without the Federal RPS standard by 2030, but natural gas prices fell as a result of the lower demand for natural gas from the electric power sector. Several RPS proposals are now pending in the U.S. Congress.

serve more than 25,000 customers, which included the 17 largest of the State's 62 utilities, representing about 85% of the State's electricity load. The RPS also included a penalty for non-compliance. In this RPS, eligible resources are geothermal, incremental hydroelectricity, wind, solar, biomass, landfill gas and gas from sewage treatment facilities, and ocean, wave, and tidal power.

Learn More

- Renewable Energy Basics (National Renewable Energy Laboratory)
- Renewable Energy Explained
- What going on with RPS in your State?
- Database of State Incentives for Renewables & Efficiency
- Renewable Portfolio Standards: A Factual Introduction to Experience from the United States (Lawrence Berkeley National Laboratory)
- Federal Energy Regulatory Commission — States RPS Information

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1 See *Wind Power and the Production Tax Credit: An Overview of Research Results* — Senate Testimony (March 2007), page 6.
2 Energy Information Administration, *Impacts of a 15-Percent Renewable Portfolio Standard*, SR/OIAF/2007-03 (Washington, DC, June 2007).

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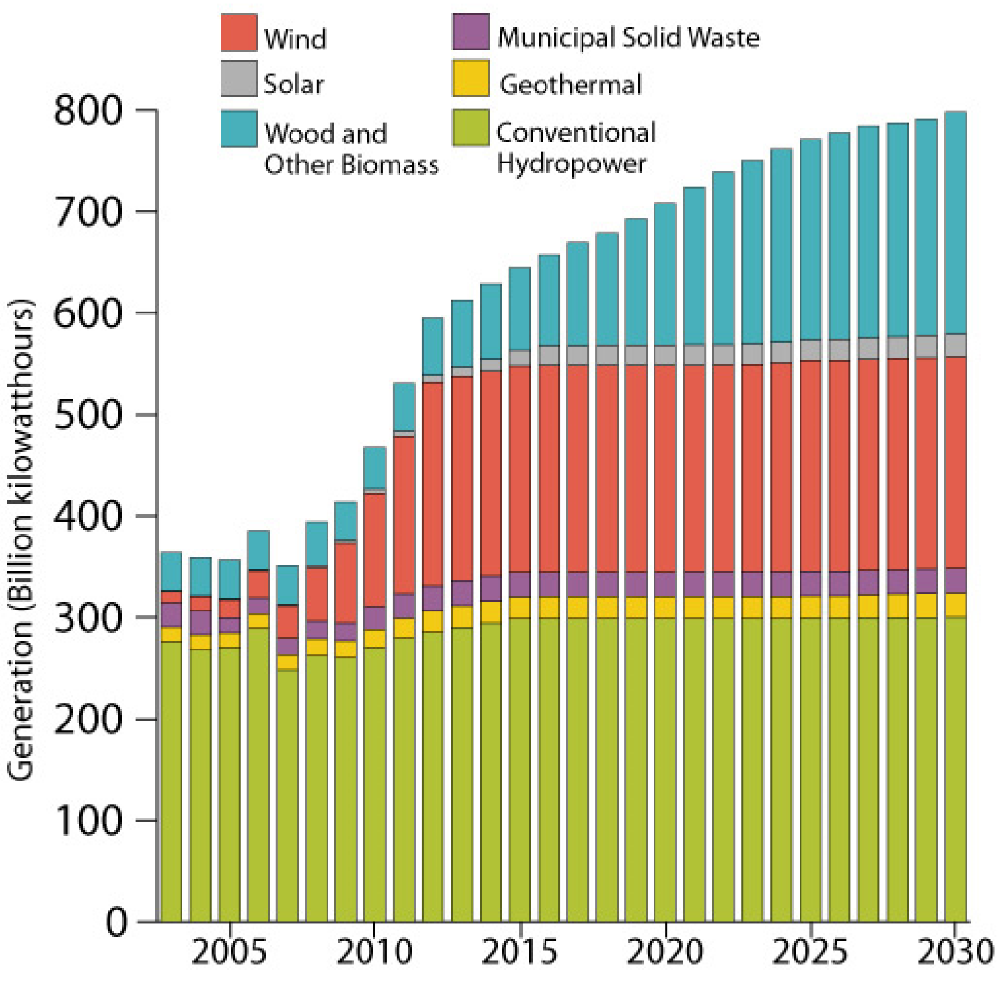

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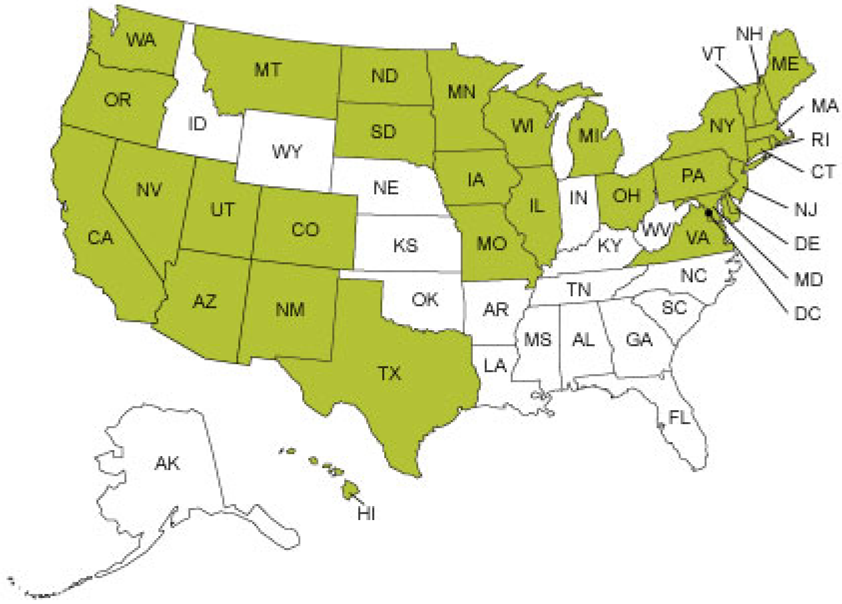
States with Renewable Portfolio Standards



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